

Mass Casualties & Major Incidents

NEICS Durham April 2008

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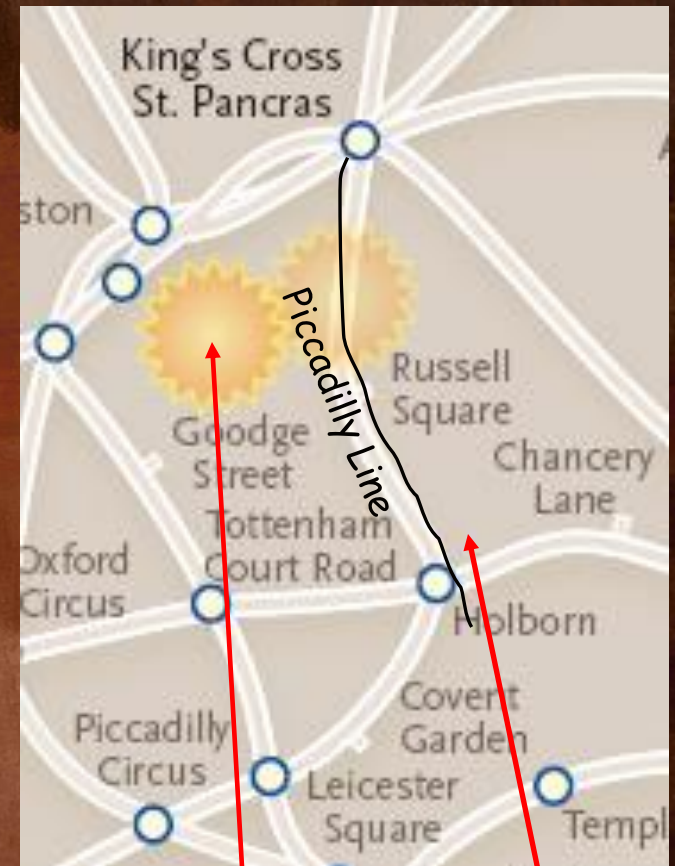
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Overview

- Why me?
- Definitions
- General Approach
 - Pre-Hospital Phase
 - In-Hospital Phase
- Examples to Learn from
- Suggestions to Go Home with

It Won't Happen to Me...

"I have trained for such a situation for 20 years — but on the assumption that I would be part of a rescue team, properly dressed, properly equipped, and moving with semi-military precision. Instead, I am in shirtsleeves and a pinstripe suit, with no pen and no paper, and I am technically an uninjured victim. All I have is my ID card, surgical gloves, and my colleagues' expectation that I will lead them through this crisis"



BMA

RCoA

It really won't happen to me...



Definitions

- Major Incident
 - Number or nature of survivors overwhelms usual medical capacity
 - Beslan/Dunblane
 - Omagh
 - GNR
- Simple/Compound
 - Madrid
 - WTC
 - Tokyo
- Compensated/Uncompensated
 - Asian Tsunami
- Disaster
 - Uncompensated compound incident

Predictably Unpredictable

- Selby Rail crash
- Kings Cross Fire
- Herald of Free Enterprise
- Tokyo Sarin attack
- Omagh Bombing
- Madrid & London Bombings
- (Great North Run)
- (Lockerbie, Buncefield Storage Fire)
- 3-4 yr in UK (0-11)

"No plan survives contact with the enemy"

So, KISS & Generic planning best

General Concerns

- Confusion
- Scene Safety
- Control
- Triage
- Uncertainty
- Confusion
- Communications
- Media Interest
- Confusion
- Communications
- Uncertainty
- Patient Tracking
- Confusion
- Fatigue

General Approach

Pre-Hospital

- Pre-Hospital Phase impacts on In-Hospital Phase
- Mobile Medical Teams
- Receiving & Supporting Hospitals

First Responses: Principles

- Police Command, Cordon & Control
- Assessment
 - with Information Flow
- Fire Service Make Safe
- Ambulance/Medical Treat & Transfer
- Gold, Silver & Bronze Areas



Controlled Entry Point



Silver Area

Bronze Areas

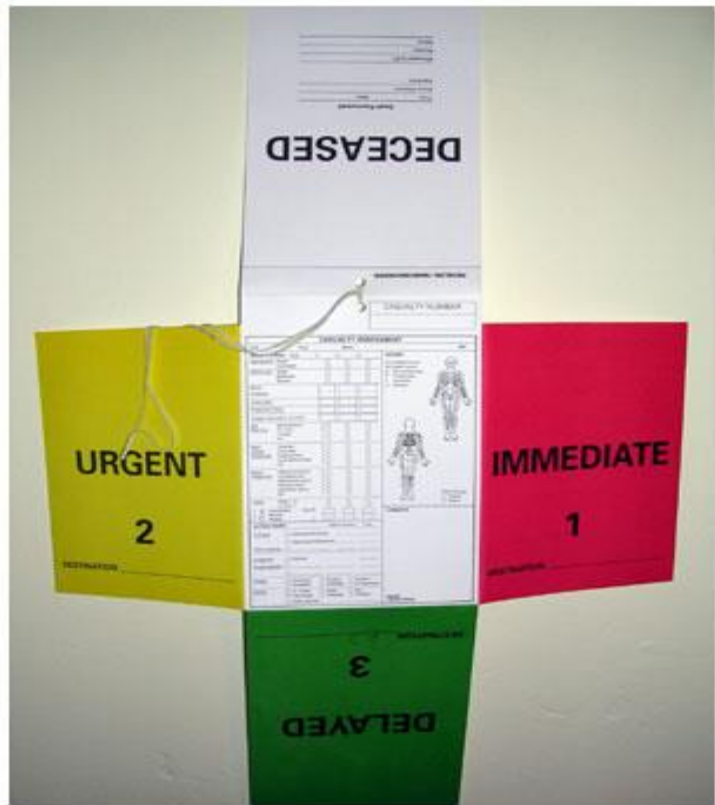
Silver Area

ERV & HLS

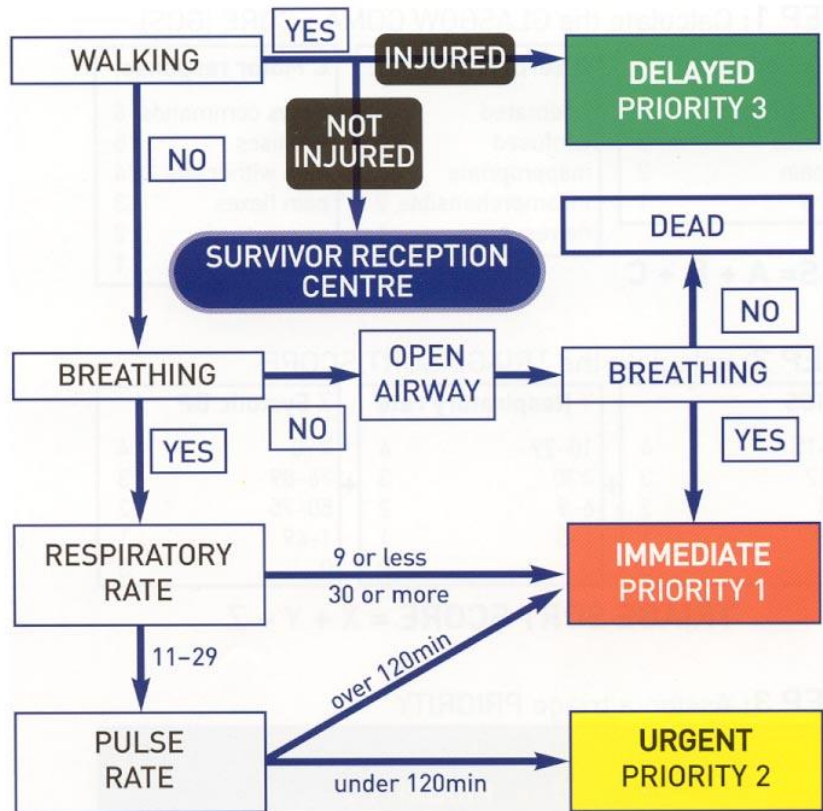
Triage

Greatest Good for the Greatest Number

- (Dynamic) Physiological triage most common
- Triage then treat
 - » (unless CW)
- Treat by category
 - » (usually)
 - » T4 category



triage sieve



Capillary refill test (CRT) is an alternative to pulse rate, but is unreliable in the cold or dark; if it is used, a CRT of >2 seconds indicates **PRIORITY 1**

General Approach

Hospital Phase- Anaesthesia

- MIP
 - Identify Ward & ICU discharges
 - Manage Emergency Admissions
 - Manage Transfers to Radiology
 - Prioritise Cases for Theatre
 - Manage Theatre work
 - Assess Sick Ward patients

Examples to Learn From



Omagh

Saturday 15 Aug 1998 1510hrs

- 1 bomb, 27 killed
- 209 patients to DGH
- Bus used early for minor casualties
- No initial Triage
- Phone system damaged/collapsed
- Victims known to staff
- Helicopter transfer to Belfast, but...

Madrid

11th March 2004 0739hrs

- 10 bombs, 4 trains, 177 killed
- 2062 casualties
 - 966 taken to 15 hospitals
- Significant over-triage
- In one hospital:
 - Of 312 admitted,
 - 89 >24hrs.
 - 29 critically ill, 16 died

Tokyo

20th March 1995 0800hrs

- Sarin release on 5 trains
- Casualties Scattered

First (of c. 6,000) casualties arrived at T+7 mins

- Multiple Hospitals involved
 - 83 hospitals in 3 hrs
 - difficulty with control, casualty flow, cross-contamination
- Delayed recognition & decontamination
 - Golden hour lost
 - 25% of carers affected- AED, Ambulance crews, police, but inc ITU/ward staff
- Medical Management limited
 - <50% treated OP poisoning previously
 - Few had pralidoxime or contacted poisons centre

London

July 7th 2005 0800hrs+

- 4 bombs (8 incident scenes)
- 775 casualties
- 56 deaths
- Early morning emergencies
- OT hadn't started
- Regional Planning team in London
- Good pre-hospital triage (HEMS)

Great North Run

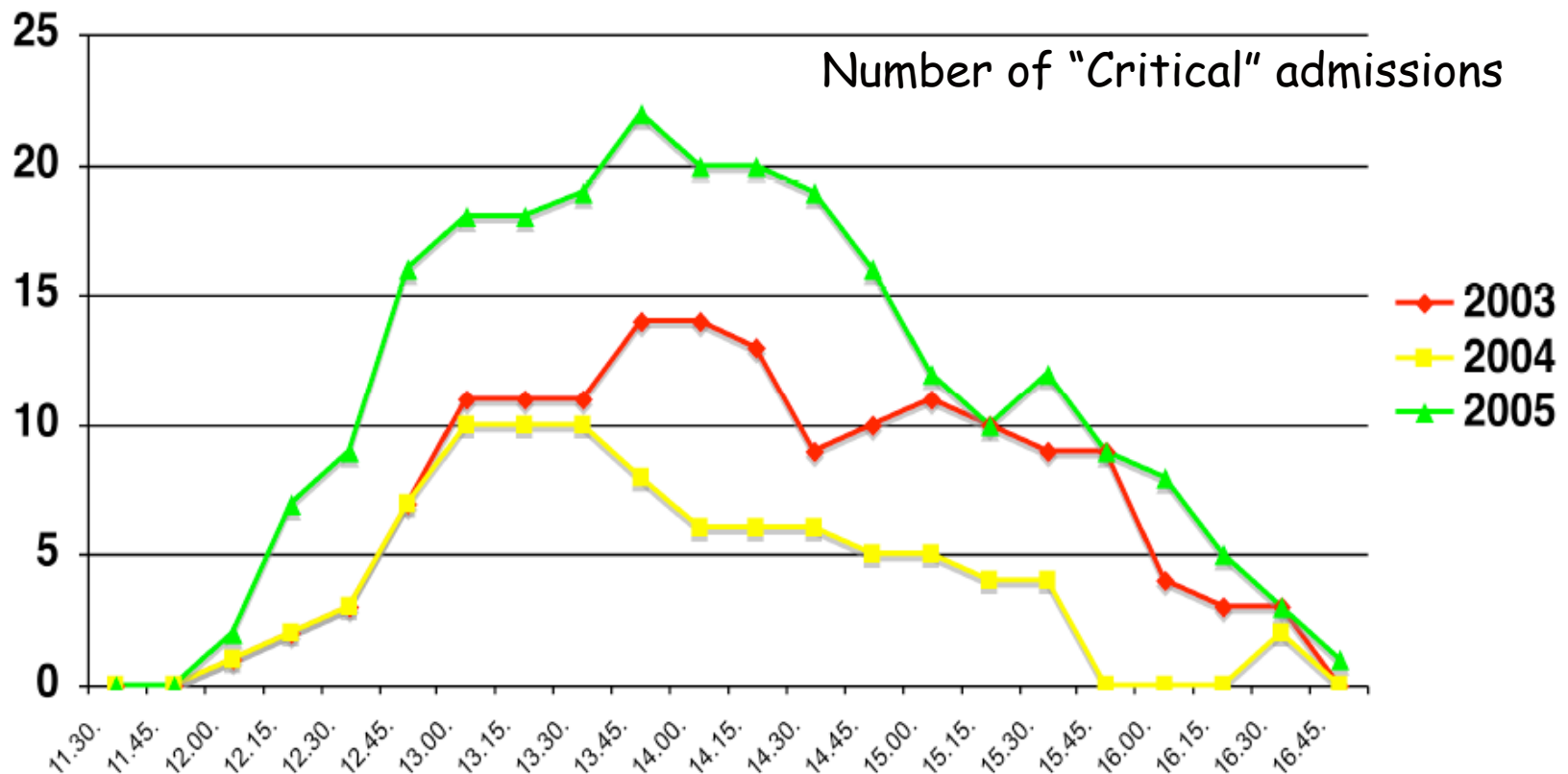
- Surge v Total numbers

Thanks to Chris Vallis

- 806 casualties (2.2% of finishers)

- 192 to FH

- » 47 to HDU



Lessons Identified

(Not learned)

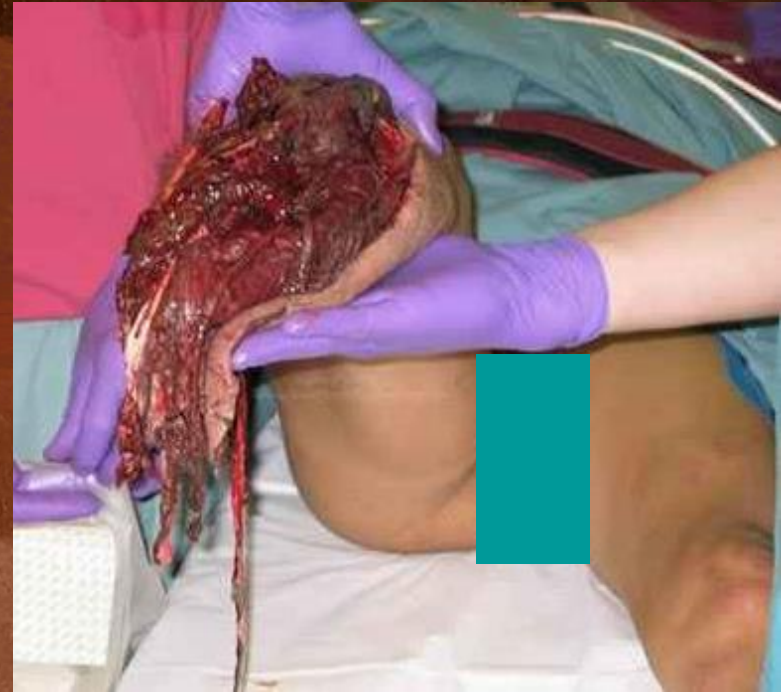
- Moving the Disaster
- Communications
- Helicopters aren't always fastest/best
- Correct Triage is important
- Controlling Special Incidents
- Plan for Surge as well as total numbers
- Casualty Demographics & Injury Patterns

What to expect: Numbers (Terrorist Incident)

- >95% are not critically injured
 - Omagh 10/336
 - London 20/775
 - Madrid 96/1885
- Mortality in critically injured c 15-20%
 - London 3/20
 - Madrid- 14/82

What to expect: Injuries (Terrorist Incident)

- Critically injured:
 - Polytrauma-
 - head/chest/abdomen/limbs
 - Traumatic amputations
 - Blast Lung
 - Flash Burns
- Minor Injured
 - Limbs
 - Perforated eardrums



Over-Triage

(& moving the disaster)

Mislabelling minor illness as severe illness

Over Triage:

- swamps the medical system
- prevent early identification of those who are truly ill
- increases mortality- linear effect between over-triage and mortality of the critically ill.

SO- pre hospital triage vital and diversion of minor injuries to other sites important

Pinch Points

- Front Door APPROPRIATE Triage
- Lab Services
- Operating Theatre
- Critical Care Capacity
- Communications
- Media Interest

In Hospital Management of Mass Casualties

- Team leadership
- Capable team members
- Medical Students
- Support Staff

Consultant Anaesthetist

Team Leader &
ED Consultant

Scribe

ODP

IV Access & Fluids

"Doctor One"

In An Ideal World....



Implications for Anaesthesia & ICU

- Madrid
 - 27 admissions to 28 (full) beds
- Bali
 - 20 admissions to 12 (full) beds
- Omagh
 - 4 theatres, 58 hrs operating on day one
 - 26hrs day 2-5
 - ICU workload increased for 2 months

Beyond the Acute Phase

- "Slow Tidal Wave"
 - AED (hours)
 - Theatres (days)
 - » Critical Care, wards, pharmacy (weeks)
- Staff rest & recuperation

Real Life Planning

I: Before the day

- Pre-emptive education-
 - Emergo (HPA)
- Plan for self-reliance
- ? Single port of entry
- Separate T3 area
- Communications
 - Runners, Master Boards, ACCOLC
- Critical Care Capacity
- Patient identifiers

Real Life Planning

II: On the day

- Front Door Triage:
 - Most experienced, level headed and objective doctor
(?Orthopaedic cons)
- Lab Services:
 - Limit blood tests: Xmatch only, Group specific blood
- OT:
 - DCS (limit OT time and improve outcomes)
 - Tourniquets (buy time, reduce blood use)
 - Ongoing Triage
- Accompanying Anaesthetist throughout
- Discharge ward patients

Conclusions

- Rare events- "predictably unpredictable"
- Generic planning required
- KISS
- Specific Hospital planning required
- Pre-Hospital phase dictates In Hospital phase
- Anaesthesia ideally placed
 - Strong Leadership
 - Order out of Chaos

"The biggest barrier to effective learning now is the apathy and complacency that plagues so much of our medical community, precisely because of the rarity of these events.

Commentary on Terrorist bombings in Madrid

Eric R Frykberg

"If you Fail to Plan, you are Planning to Fail"

Questions?

References & Resources

ALSG
MIMMS
Hospital MIMMS
Chemical MIMMS

Health Protection Agency
DH Emergency Planning
DNUK
Military courses